

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of Claims:**

1. (Original) A method of screening an individual for increased risk of low folate status, said method comprising detecting a mutation in a human glutamate carboxypeptidase II (GCPII) gene in a biological sample from said individual, wherein detection of the mutation is indicative of decreased ability to hydrolyse a terminal glutamate residue of a folypoly- $\gamma$ -glutamate, which decreased ability is associated with low folate status.

2. (Original) The method of claim 1, wherein the mutation is a single nucleotide polymorphism.

3. (Currently amended) The method of claim [[3]] 2, wherein the single nucleotide polymorphism causes an amino acid substitution of H475Y.

4. (Original) A method of claim 1 wherein the mutation is detected by

(a) amplifying the GCPII gene, or a portion thereof containing the mutation, with a set of primers to provide an amplified product,

(b) sequencing the amplified product to obtain a sequence, and

(c) comparing the sequence of the amplified product with a known sequence of a wild-type GCPII gene,

wherein a difference between the sequence of the amplified product and the sequence of the wild-type GCPII gene indicates the presence of a mutation.

5. (Original) A method of claim 4, wherein said amplification is by polymerase chain reaction.
6. (Original) A method of claim 4, wherein said sequencing is performed by detecting the incorporation of a nucleotide into a strand complementary to a template strand by detecting the presence of a pyrophosphate released from the incorporated nucleotide.
7. (Original) A method of claim 1 wherein the mutation is detected by
  - (a) amplifying exon 13 of the GCPII gene with a set of primers to provide an amplified product,
  - (b) sequencing the amplified product to obtain a sequence, and
  - (c) comparing the sequence of the amplified product with a known sequence of exon 13 of a wild-type GCPII gene,wherein a difference between the sequence of the amplified product and the sequence of the wild-type GCPII gene indicates the presence of a mutation.
8. (Currently amended) A method of claim 7, wherein said primers are  
5'-CATTCTGGTAGGAATT[[]]TAGCA-3' (SEQ ID NO:29) and 5'-  
AAACACCACCTATGTTTAACA-3' (SEQ ID NO:30).
9. (Original) A method of claim 7, wherein said amplification is by polymerase chain reaction.
10. (Original) A method of claim 7, wherein said sequencing is performed by detecting the incorporation of a nucleotide into a strand complementary to a template strand by detecting the presence of a pyrophosphate released from the incorporated nucleotide.

11. (Original) A method of claim 1, wherein said mutation is detected by hybridizing DNA from said individual to a test nucleic acid under stringent conditions.
12. (Original) A method of claim 11, wherein either said DNA from said individual or said test nucleic acid is immobilized on a solid support.
13. (Original) A method of claim 1, wherein said mutation is detected by
  - (a) amplifying exon 13 said GCPII gene,
  - (b) subjecting said amplified exon 13 to digestion by restriction enzymes,
  - (c) separating the resulting restriction products to form a pattern of restriction fragment lengths, and
  - (d) comparing the pattern of restriction fragment lengths to a pattern of restriction fragment lengths formed by subjecting amplified exon 13 of a wild-type GCPII gene to the same restriction enzymes.
14. (Original) A method of claim 13, wherein said separation of the restriction products is by gel electrophoresis.
15. (Original) A method of claim 13, wherein the restriction enzyme is *AccI*.
16. (Original) A method of claim 15, wherein the pattern of restriction fragments of exon 13 of the GCPII gene of the individual shows restriction fragments selected from the group consisting of: 141 bases and 103 bases.
17. (Original) A method of claim 1, wherein said mutation is detected by specifically binding an antibody to a truncated product of the GCPII gene, wherein the specific binding of the antibody to the truncated gene product is indicative of a mutation impairing the ability of the GCPII gene product to digest a dietary folate.

18. (Original) A method of claim 17, wherein detection of said specific binding of said antibody and said truncated gene product is by ELISA.

19 (Original) A method of screening an individual for increased risk of low folate status comprising

(a) performing reverse transcriptase-PCR on mRNA from intestinal cells of the individual to amplify products of a GCPII gene, and

(b) determining the ratio of a variant product in which 93 bases of exon 18 are deleted to a normal product of the GCPII gene,

wherein a ratio of the variant form to the normal form greater than 1:3 indicates the individual is at increased risk of low folate status.

20. (Withdrawn) A mutation in a GCPII gene which impairs the ability of a product of the gene to hydrolyse a conjugated folate to release folic acid compared to a product of a wild-type GCPII gene.

21. (Withdrawn) A mutation of claim 20, wherein the ability of a product of the gene to hydrolyse a conjugated folate is reduced by 20 percent or more compared to a product of a wild-type GCPII gene.

22. (Withdrawn) A mutation of claim 20, wherein the mutation is a 93-base deletion resulting from the elimination of exon 18.

23. (Withdrawn) The mutation of claim 20, wherein the mutation is a single nucleotide polymorphism.

24. (Withdrawn) The mutation of claim 23, wherein the single nucleotide polymorphism causes an amino acid substitution of: H475Y.

25. (Withdrawn) A kit for the detection of a woman at increased risk for bearing a child with a neural tube defect, comprising:

(a) a container, and

(b) primers for amplifying a GCPII gene or portion thereof.

26. (Withdrawn) A kit of claim 25, further comprising instructions for detecting a mutation in the GCPII gene resulting in decreased ability of a product of the GCPII gene to hydrolyze a conjugated folate compared to the product of a wild-type GCPII gene.

27. (Withdrawn) A kit of claim 25, further comprising an AccI restriction enzyme.

28. (Withdrawn) A kit for the detection of an individual at increased risk for low folate status, comprising:

(a) a container, and

(b) primers for amplifying a GCPII gene or portion thereof.

29. (Withdrawn) A kit of claim 28, further comprising instructions for detecting a mutation in the GCPII gene resulting in decreased ability of a product of the GCPII gene to hydrolyze a conjugated folate compared to a product of a wild-type GCPII, wherein detection of such a mutation indicates the individual is at increased risk for low folate status.

30. (Withdrawn) A kit of claim 28, further comprising an AccI restriction enzyme

31. (New) A method of claim 1, wherein detection of the mutation is further indicative that the individual is at increased risk of hyperhomocysteinemia.